UNIQUELY-DISPOSED CUP-HOLDER STRAP

FIELD OF THE INVENTION

This invention relates to packaging in general and in particular to boxes and box blanks that have a cup-holder strap.

DESCRIPTION OF PRIOR ART

In the food-to-go industry, and particularly the pizza segment, companies often pack a food cup along with the primary product. The food cup is typically a cup of sauce and the primary product is typically pizza, breadsticks, chicken wings, or the like.

The primary product and food cup are typically packed in a corrugated box such as a corrugated pizza box or breadstick box. These boxes are typically of the type that has a double-panel, or rollover, front wall. To secure the food cup in position during transit, the box is typically equipped with a cup-holder strap in a side wall structure of the box. This strap is disposed in a rear corner section of the box. It extends from a side wall to a rear corner flap that's attached to a rear end of the side wall. Numerous pizza companies use boxes of this type. Perhaps the most prominent

example is Papa John's.

FIGS. **1** and **2** each illustrate a section of a blank **10** and a box **12**, respectively, which comprise a typical structure of a prior art cup-holder strap in a corrugated box having a double-panel front wall. The blank and box each have a bottom panel **20**, a rear wall **22**, a cover panel **24**, and a cover side flap **26** (shown in FIG. **1** only). A side wall **30** is attached to bottom panel **20** at a bottom edge fold line **32**. A rear corner flap **34** is attached to a rear end of side wall **30** at a corner flap fold line **36**.

In blank **10** a cup-holder strap **40a/b** is shown. The strap is essentially bisected into two parts (**a** and **b**) by corner flap fold line **36**. Part **40a** is disposed in corner flap **34** and part **40b** is disposed in side wall **30**. Cup-holder strap **40a/b** has top and bottom edges that are respectively labeled **42a/b** and **44a/b** in the drawing. Each edge of the strap is divided into two portions (**a** and **b**) corresponding with the two parts of the strap. At opposing ends of the strap are cup-holder end fold lines **46** and **48**. Each line extends between the opposing end points of the two edges.

In box **12** cup-holder strap **40a/b** is shown in cup-holding position, or projecting inwardly from side wall **30** and corner flap **34** into a rear corner section of the box. Strap portions **40a** and **40b** are disposed substantially perpendicular to one another and are joined at corner-making fold line **50** (which, in the blank format, was previously a portion of corner flap fold line **36**).

Several salient structural characteristics of the prior art box and cup-holder strap are now noted. First, the cup-holder strap is disposed in a rear corner section of the box (as opposed to a front corner section). The reason for this is that the structure of the double-panel front wall of the box does not allow installation of a functional cup-holder strap in the front corners. Second, this particular corner section happens to comprise a non-connected corner (as opposed to a connected-corner). As the term is used herein, a "non-connected corner" is a corner wherein at least one of the two walls comprising the corner lays back when the cover of the box is opened up and laid back. On the other hand, a "connected corner" is a corner wherein both of the walls comprising the corner stay in upright position when the cover of the box is opened up and laid back. Third, the walls of the box (i.e., walls **22** and **30**) are disposed substantially perpendicular to the bottom panel. Fourth, corner flap fold line **36** is disposed substantially perpendicular to bottom edge fold line **32**. Fifth, the two portions of each edge of the cup-holder strap are substantially aligned one to another. In other words, portions **42a** and **42b** are aligned and portions **44a** and **44b** are aligned. Sixth, cup-holder end fold lines **46, 48** are each disposed substantially perpendicular to edges **42a/b** and **44a/b** and are also disposed non-obliquely to bottom edge fold line **32**. Seventh, corner-making fold line **50** is also disposed substantially perpendicular to edges **42a/b** and **44a/b**. Eighth, the cup-holder strap is disposed substantially parallel to bottom panel **20** and substantially perpendicular

to side wall **30** and corner flap **34**.

This particular prior art cup-holder structure works acceptably well in a box that has walls that are substantially perpendicular to the bottom panel. However, it is essentially non-functional when incorporated within a box that has slanting, or obliquely-angled, walls. In this situation, the cup-holder strap assumes an abortive-looking non-level disposition within the corner section of the box or, specifically, a disposition that is non-parallel to the bottom panel. This condition, firstly, imparts a "misdesigned" look to the box and, secondly, provides a crooked holder for the food cup.

So, there has remained a problem of how to provide a proper-looking, proper-functioning cup-holder strap in a box having one or more slanting walls. This problem has not been solved by the prior art but is solved by my invention.

In addition, a prior art pizza box and breadstick box having a double-panel, or rollover, front wall requires that the cup-holder strap be positioned in a rear corner of the box as opposed to a front corner. This is because the structure of the prior art double-panel front wall does not allow a cup-holder strap in the front corner to function, or to be moved into a cup-holding position. This particular box, which is the most predominately used box in the pizza industry, is known as the "traditional pizza box." It is used by such firms as Pizza Hut, Little Caesars, and Papa John's. Because

the structure of this box precludes use of a cup-holder strap in a front corner section of the box, the traditional pizza box must incorporate the cup-holder strap in a rear corner section exclusively. This limits the food cup carrying capacity of this box to two (rear) corners only.

So, there has remained a problem of how to carry a food cup in a cup-holder strap in a front corner of a traditional box having a double-panel front wall. This problem has not been solved by the prior art but is solved by my invention.

In conclusion, it would be highly desirable to provide a cup-holder strap structure that overcomes the above-described problems and disadvantages and, thereby, performs better in a box having slanting walls and/or a double-panel wall structure.

SUMMARY OF THE INVENTION

My invention is a blank and/or box having a cup-holder strap that incorporates one or more of the following features:

1) A cup-holder strap disposed in a connected-corner section of a box having a double-panel wall;

2) A cup-holder strap having a corner-making fold line disposed at an oblique angle to an edge of the cup-holder strap;

3) A cup-holder strap projecting from an obliquely-angled wall of a box and being disposed parallel to the bottom panel.

4) A cup-holder strap disposed adjacent a double-panel wall structure having an inner panel with an offset end edge adjacent the strap;

5) A cup-holder strap having a cup-holder end fold line that is disposed obliquely to a bottom edge fold line; and

6) A cup-holder strap having a cup-holder edge comprising opposing first and second portions that are non-aligned.

My invention typically would be used for packaging food products such as pizza and breadsticks; however, it could take other forms for other purposes, as well.

A complete understanding of the invention can be obtained from the detailed description that follows.

OBJECT AND ADVANTAGES

The main objects of my invention are:

1) To enable the installation of a functioning cup-holder strap in a connected corner section of a box comprising a double-panel wall as one of the two adjoining walls of the corner; and

2) To enable the installation of a cup-holder strap in a slanting wall structure while having the strap looking and functioning properly, or disposed substantially parallel to the bottom panel.

The advantage of my invention is the opportunity to install a functioning cup-holder strap in a greater variety of box types and in a greater number of corners within a box having a double-panel wall structure.

Further objects and advantages of the invention will become apparent from consideration of the following detailed description, related drawings, and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view of a rear corner section of a blank for a prior art box having a prior art cup-holder strap.

FIG. **2** is a perspective view of the section of the blank of FIG. **1** after being erected into a box.

FIG. **3** is a plan view of a front corner section of a blank having a cup-holder strap of the instant invention.

FIG. **4** is a perspective view of the section of the blank of FIG. **3** after being erected into a box.

FIG. **5** is an end elevation view of the section of box shown in FIG. **4** viewed in the direction of arrow **5**.

FIG. **6** is an outside side elevation view of the section of box shown in FIG. **4** viewed in the direction of arrow **6**.

FIG. **7** is a top view of a complete box having a double-panel front wall and with a cutaway cover portion exposing a cup-holder strap disposed adjacent the double-panel front wall in a front corner section of the box.

LIST OF REFERENCE NUMERALS

Within a drawing, closely related components have the same number but different alphabetic suffixes. Between drawings, like reference numerals designate corresponding parts.

10	section of a blank
12	section of a box
14	section of a blank
16	section of a box
18	box
20	bottom panel
22	rear wall
24	cover panel
26	cover side flap
30	side wall
32	bottom edge fold line
34	rear corner flap
36	corner flap fold line

40a/b cup-holder strap
42a/b top edge of cup-holder strap
44a/b bottom edge of cup-holder strap
46 cup-holder end fold line
48 cup-holder end fold line
50 corner-making fold line
58 bottom panel
60 double-panel front wall structure
62 outer panel
64 bottom edge fold line
66 inner panel
68 fold line
72 end edge of outer panel
76 offset end edge of inner panel
80 side wall structure
82 side wall
84 bottom edge fold line
86 front corner flap
88 corner flap fold line
90 cup-holder strap
90a first part of cup-holder strap
90b second part of cup-holder strap
92a/b top edge of cup-holder strap
94a/b bottom edge of cup-holder strap
96 cup-holder end fold line
98 cup-holder end fold line
102 end point of edge
104 end point of edge
106 end point of edge
108 end point of edge
110 oblique angle
112 oblique angle
114 oblique angle
116 oblique angle

118 oblique angle
120 oblique angle
122 oblique angle
124 corner-making fold line
126 oblique angle
128 oblique angle
130 bottom panel
132 rear wall
134 cover
136 double-panel front wall
138 side wall
140 cup-holder strap

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to the drawings, there is illustrated a preferred embodiment of the invention in the format of a partial section of a corrugated blank and box.

FIG. **3** shows a corner section of a blank **14** and FIGS. **4**, **5**, and **6** show a section of a box **16** created from the blank. The intended use for the embodiment is as a food carton or, specifically, a pizza box or breadstick box. However, it will be appreciated, as the description proceeds, that my invention may be realized in different embodiments and may be used in other applications.

Structure of the Embodiment

Referring in particular to FIG. **3** which shows blank **14**, there is a bottom panel **58**, a double-panel wall structure **60**, and another wall structure **80**.

Double-panel wall structure **60** comprises an outer panel **62** hingedly attached to bottom panel **58** at an outer panel bottom edge fold line **64** and an inner panel **66** hingedly attached to a top edge of outer panel **62** at a fold line **68**. (Numeral **64** also indicates an edge of bottom panel **58**.) Panels **62, 66** have end edges **72, 76**, respectively.

Wall structure **80** comprises a wall **82** hingedly attached to bottom panel **58** at a wall bottom edge fold line **84** and a corner flap **86** hingedly attached to an end of wall **82** at a corner flap fold line **88** that extends substantially from the top edge to the bottom edge of the wall. (Numeral **84** also indicates an edge of bottom panel **58**.)

Wall structure **80** further includes a cup-holder strap **90**. Strap **90** is approximately bisected into two parts by corner flap fold line **88**, these two parts being labeled **90a** and **90b**. Part **90a** is disposed within and attached to corner flap **86** and part **90b** is disposed within and attached to wall **82**. The strap has top and bottom edges respectively labeled **92a/b** and **94a/b**. The top edge is bisected into portions **92a** and **92b** and the bottom edge is bisected into portions **94a** and **94b**. Finally, at each end of the strap is a cup-holder end fold line (**96** or **98**) that extends between the opposing ends, or end points, of the cup-holder edges. Specifically, end fold line **96** extends between end points **102** and **104** and end fold line **98** extends between end points **106** and **108**.

As can be seen, cup-holder strap **90a/b** has substantially the same components as prior art strap **40a/b** of FIG. **1**. What sets the instant inventive strap **90a/b** apart from prior art strap **40a/b** is (a) the angles between the components and (b) the relationship of the strap to double-panel wall structure **60**.

In the prior art strap of **40a/b** each angle between components is either a ninety degree angle or a one hundred eighty degree angle (i.e., aligned). However, in strap **90a/b** each angle between components is an oblique angle, meaning either more than or less than ninety degrees.

Specifically, there is an oblique angle **110** between corner flap fold line **88** and bottom edge fold line **84**, an oblique angle **112** between cup-holder end fold line **96** and top edge **92a**, an oblique angle **114** between cup-holder end fold line **98** and top edge **92b**, and an oblique angle **116** between top edges **92a** and **92b**, which makes edge portions **92a** and **92b** non-aligned. Further, cup-holder end fold line **98** is obliquely disposed to bottom edge fold line **84**, meaning that if the plane of fold line **98** were extended to intersect fold line **84** the intersection of the two lines would form an oblique angle. Further, although not labeled, it can be seen that there also are oblique angles between the cup-holder end fold lines and the bottom edge of the strap, as well. And there are oblique angles between corner flap fold line **88** and the edges **92a/b** and **94a/b**. Lastly, it is noted that there exists an oblique

angle **118** between the top edge of side wall **82** and the top edge of corner flap **86**.

In the drawing of blank **14**, the specific angles are as follows. Angle **110** is 70 degrees, angle **112** is 110 degrees, angle **114** is 80 degrees, and angle **116** is 170 degrees. After blank **14** is erected into box **16** shown in FIG. **4**, wall **82** slants outward at approximately a 100 degree angle to bottom panel **58** (shown as angle **120** in FIG. **5**) and double-panel wall structure **60** and corner flap **86** slant inward at approximately a 70 degree angle to bottom panel **58** (shown as angle **122** in FIG. **6**). However, due to the particular oblique angles between the components of cup-holder strap **90**, the strap is disposed substantially level, or parallel to bottom panel **58**. This provides for a nice looking, proper functioning cup-holder strap. Further, it is noted that in the box format of FIG. **4** there is a corner-making fold line **124** that joins cup-holder strap parts **90a** and **90b**. This fold line happens to be disposed at an oblique angle (**126**) to top and bottom edges **92a/b, 94a/b**. (It is noted that when box **16** is in the format of blank **14** that corner-making fold line **124** is part of corner flap fold line **88**.) Finally, as shown in FIG. **5**, it is noted that cup-holder strap top edge **92b** is disposed at an oblique angle **128** to side wall **82**.

In addition to the unique oblique angles of cup-holder strap **90**, a further unique feature of the strap is that it is disposed in a connected corner section of the box, or in a corner formed by the intersection of wall structure **82** with double-panel

wall structure **60**. This result is achieved by the special end edge configuration of inner panel **66**. Specifically, end edge **76** of inner panel **66** is offset in relation to end edge **72** of outer panel **62**. We refer to this as an "offset end edge." This offset end edge **72** is disposed interior to cup-holder strap **90** and, thereby, allows strap **90** to "swing clear" of inner panel **66** when the strap is moved into cup-holding position, or moved to an inward-projecting disposition. This result cannot be achieved with the prior art double-panel wall structures that lack an offset end edge on the inner panel, which is why prior art cup-holder straps are disposed in non-connected corners, or corners lacking a juncture with a double-panel wall.

FIG. **7** shows a whole box **18** with a cut-away cover and comprising a bottom panel **130**, a rear wall **132**, a cover **134**, an inward-slating double-panel front wall structure **136**, an outward-slanting side wall **138**, and a cup-holder strap **140** disposed in a connected front corner section of the box.

The particular angles used in the preferred embodiment are for illustrative purposes and do not constitute a recommendation. The general design process involving this invention is, first, to decide what degree of slant, or angle, is desired for each wall of the box and, following that, calculate the degrees that are needed in the various oblique angles of the cup-holder strap to result in a level strap after the blank has been erected into a box. This can either be done mathematically (via plane geometry) or by trial-and-error, meaning by

designing and cutting a sample, eye-balling the resulting box, and then making adjustments in the various oblique angles of the cup-holder strap to bring the strap into desired position.

Within the drawing of the blank, a fold line between component parts of the invention is depicted with a dashed line. The type of fold lines shown in the drawings are presently preferred but it will be appreciated that other methods known to those skilled in the art may be used. Within the context of this invention, a fold line can be created by a number of means such as, for example, by a crease or score in the board, by a series of aligned spaced short slits in the board, and by a combination of aligned spaced short and long slits. In some cases, when a longer slit is bounded on the ends by a series of shorter slits or a score, the longer slit may be slightly offset in alignment from the shorter slits or score for the purpose of creating a slot along the fold line when the blank is set up into a box. Such an offset slit may be referred to herein as a "slot-forming slit." Nonetheless, the entire combination of long and short slits is considered to constitute a single fold line unless otherwise indicated.

In addition, to create a fold line where one panel is folded 180° to lay parallel on another panel, the fold line may constitute two narrowly-spaced parallel scores or series of aligned slits. In this case, the two narrowly-spaced parallel scores or series of aligned slits constitute a single fold line unless otherwise indicated.

In conclusion, as referred to herein, a fold line is any line, either real or imaginary, between two points on the blank or box along which the board is intended to be folded when the blank is being erected into a box or when the box is being manipulated as described herein.

Operation of the Embodiment

Blank **14** is erected into box **16** by the same method that has been used for erecting double-panel wall structures for the past fifty years or so. Regarding the "strap-erecting process," or the process of putting cup-holder strap **90** into cup-holding position, this can be accomplished either prior to erecting the box or afterwards. If done prior to erecting the box, it is accomplished by pushing the strap inward and away from wall **82** while simultaneously folding corner flap **86** inward. If done after erecting the box, it is accomplished by pushing part **90b** inward until the entire strap "pops" inward and into cup-holding position. This action can cause part **90b** to bend or buckle in the middle. However this does not diminish the cup-carrying performance of the strap. If it is deemed undesirable to have a bend in part **90b**, then the first strap-erecting process should be used.

CONCLUSION, RAMIFICATIONS, AND SCOPE

I have disclosed a unique box and cup-holder strap whereby the strap can be disposed in a connected corner of the box and the box can have one

or more slanting walls with the strap being disposed in a level disposition.

Within the foregoing discussion of the invention, the labeling of any components by a numerical adjective (i.e., "first," "second," etc.) is for reference purposes only and does not denote any particular location of the components within the blank or box. Further, the term "hingedly attached" refers to two panels (or a panel and a flap) joined together at a fold line, and does not imply any degree of movability of the panels in the erected box format.

The illustrated number, size, shape, type, and placement of components represent one possible embodiment. Many other combinations and configurations are possible within the scope of the invention.

The foregoing discussion has pertained mainly to packaging food products such as pizza and breadsticks. However, it should be realized that my invention could be used for other purposes, as well. In conclusion, it is understood that the invention is not to be limited to the disclosed embodiments but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims, which scope is to be accorded the broadest interpretation so as to encompass all such modifications and equivalent structures as is permitted under the law.